

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1. (cancelled)

Claim 2. (currently amended): The method according to claim 1519, wherein the polyolefin of cross-linking step (a) is produced by copolymerizing the product of the copolymerisation of at least one olefinic monomer monomers selected from the group consisting of ethylene, propylene, 1-butene, 1-pentene, 1-hexene, 4-methyl-1-pentene, 3-methyl-1-pentene, 3,3-dimethyl-1-butene, 3-methyl-1-hexene, and 2,4,4 trimethyle-1-pentene.

Claim 3. (currently amended): The method according to claim 1519, wherein the plasto-elastomeric composition comprises the part to which fillers are not added contains between 10% and 90% of the polyolefin by weight and between 90% and 10% of a the EPDM terpolymer by weight.

Claim 4. (currently amended): The method according to claim 152, wherein a main polymeric chain of the EPDM terpolymer consists of at least two olefinic monomers and one dienic monomer, and wherein the two olefinic monomers and one dienic monomer in the main polymeric chain are conjugated or not conjugated. in the main polymeric chain.

Claim 5. (cancelled)

Claim 6. (currently amended): The method according to claim 43, wherein the one dienic monomer is selected from the group consisting of ethylidene-norbornene, a derivative of ethylidene-norbornene, 1,4-hexadiene, a derivative of 1,4-hexadiene, dicyclopentadiene, a derivative of dicyclopentadiene, 2-methyl-1,4-pentadiene, a derivative of 2-methyl-1,4-pentadiene, 1,4,9-decatriene, a derivative of 1,4,9-decatriene, 1,5-cyclopentadiene, a derivative of 1,5-cyclopentadiene, polybutene, a derivative of polybutene, polybutadiene, and a derivative of polybutadiene.their derivatives.

Claim 7. (currently amended): The method according to claim 1519, wherein the at least one filler of mineral origin is calcium carbonate, ~~fillers are coated or uncoated, pure or impure, precipitated or non-precipitated calcium carbonate~~ CaCO_3 .

Claim 8. (currently amended): The composition according to claim 1917, wherein the at least one filler of mineral origin is calcium carbonate, ~~the calcium carbonate~~ having a ~~typical~~ specific gravity of 2.71 g/cm^3 .

Claim 9. (currently amended): The composition according to claim 1917, wherein the at least one filler of mineral origin is aluminium hydroxide, ~~chemical formula~~ $\text{Al}(\text{OH})_3$.

Claim 10. (currently amended): The composition according to claim 9, wherein the aluminium hydroxide has a ~~typical~~ specific gravity of 2.42 g/cm^3 .

Claim 11. (currently amended): The composition according to claim 1917, wherein the at least one filler of mineral origin is magnesium hydroxide, ~~chemical formula~~ $\text{Mg}(\text{OH})_2$.

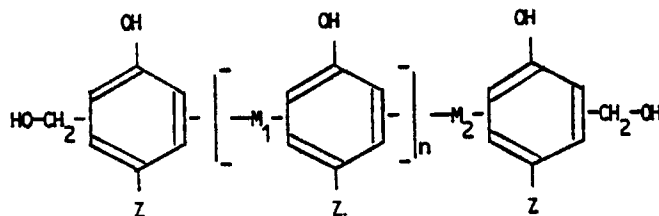
Claim 12. (currently amended): The composition according to claim 1917, wherein the at least one filler of mineral origin is barytes, ~~Barytes chemical formula~~ BaSO_4 .

Claim 13. (currently amended): The composition according to claim 12, wherein the barytes ~~Barytes~~ is a barium sulphate with different colours and has a ~~typical~~ specific gravity of 4.48 g/cm^3 .

Claim 14. (currently amended): The ~~plasto-elastomeric~~ composition according to ~~claim 9~~, wherein the aluminium hydroxide is present in quantities of up to 75%.

Claim 15. (currently amended): A method for producing a recyclable and nontoxic plasto-elastomeric composition, the method comprising the steps of:

(a) providing a plasto-elastomeric composition having the elastomeric phase partially or fully cross-linked, wherein the cross-linking is carried out by means of salicylic acid and alkylphenol-formaldehyde non-halogenated cross-linking an EPDM terpolymer and a polyolefin by combining a nonhalogenated alkylphenol-formaldehyde phenolic resin of formula (I) :



wherein M_1 and M_2 are $-CH_2-$ or $-CH_2-\overset{\overset{O}{||}}{C}-CH_2-$ radicals, which may be the same or different, Z is an alkenyl, acrylic or alkyl radical containing between 4 and 16 carbon atoms, and n is an integer between 0 and 6; and 0.1 parts to 0.8 parts by weight of salicylic acid for each part by weight of the resin;

wherein the cross-linking results in a partially or fully cross-linked elastomeric phase;

(b) adding at least one filler of mineral origin during or after cross-linking step (a), so that the recyclable and nontoxic plasto-elastomeric composition reaches a maximum specific gravity of 2 kg/dm^3 and a hardness ranging from ShA 40 to ShD 50;

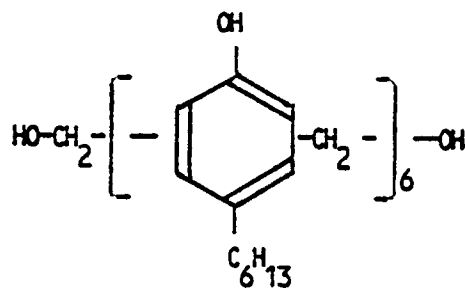
wherein the at least one filler of mineral origin is selected from the group consisting of a Calcium calcium carbonate, aluminium hydroxide, magnesium hydroxide, and barytes; Barytes filler to the composition;

wherein the at least one filler of mineral origin represents 90% or less by weight of the plasto-elastomeric composition; and

wherein the recyclable and nontoxic plasto-elastomeric composition does not produce chlorine or dust or contain heavy metals.

~~wherein the composition comprises 0.1 to 0.8 parts by weight of salicylic acid for each part by weight of resin; and wherein the fillers are in a quantity which is 90% or less by weight of the composition and wherein the filler is added until the composition reaches a total specific gravity of 2 kg/dm^3 and a hardness ranging from ShA 40 to ShD 50.~~

Claim 16. (currently amended): A The method according to claim 1519, characterised in that wherein the nonhalogenated alkylphenol-formaldehyde phenolic resin of formula I is a phenol-formaldehyde type resol of with the following formula (II):



(II)

Claim 17. (currently amended): ~~A~~The plasto-elastomeric composition obtained by a the method according to claim 15~~19~~.

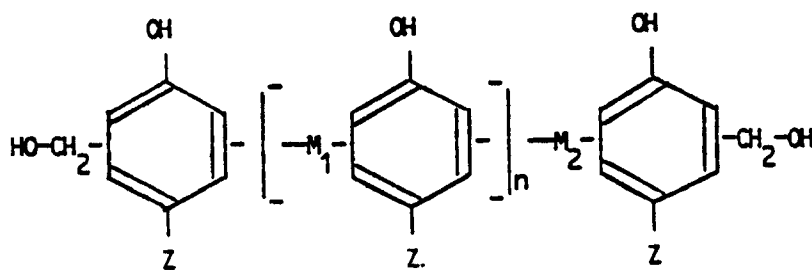
Claim 18. (currently amended): The ~~plasto-elastomeric~~ composition according to~~of~~ claim 11, wherein the magnesium hydroxide is present in quantities of up to 75%.

Claim 19. (currently amended): ~~An EPDM terpolymer and polyolefin-based~~ A recyclable and nontoxic plasto-elastomeric composition containing the cross-linked elastomeric phase wherein for cross-linking formula (I) comprising an EPDM terpolymer, a polyolefin, and at least one filler of mineral origin;

wherein the plasto-elastomeric composition has a partially or fully cross-linked elastomeric phase;

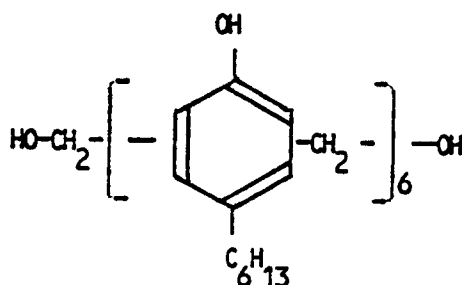
wherein the EPDM terpolymer and the polyolefin are cross-linked by combining 0.1 to 0.8 parts by weight of salicylic acid and a non-halogenated alkylphenol-formaldehyde non-halogenated phenolic resin of formula (I), where M_1 and M_2 are $-CH_2-$ or $-CH_2-C-CH_2-$ radicals, Z is an alkylene, acrylic or alkyl radical containing between 4 and 16 carbon atoms, and n is an integer between 0 and 6:

(I)



or a formula (II) nonhalogenated phenol – formaldehyde non-halogenated resole resin of with the formula II:

(II)



~~is used and in which, in addition to, the non halogenated phenolic resin, an aromatic carboxylic acid is used for cross-linking, wherein for each part by weight of resin between 0.1 and 0.8 parts by weight of salicylic acid are used, the composition fillers of mineral origin are added to the composition during or subsequently following the cross-linking to achieve a total specific gravity of up to 2 kg/dm³ and having a hardness hardnesses ranging from ShA 40 to ShD 50, the fillers of mineral origin being up to 90% by weight of the composition.~~

wherein the at least one filler of mineral origin is selected from the group consisting of calcium carbonate, aluminium hydroxide, magnesium hydroxide, and barytes; and represents less than 90% by weight of the plasto-elastomeric composition;

wherein the at least one filler is added during or after the cross-linking to achieve the recyclable and nontoxic plasto-elastomeric composition with a maximum total specific gravity of 2 kg/dm³ and a hardness ranging from ShA 40 to Shd 50; and

wherein the recyclable and nontoxic plasto-elastomeric composition does not produce chlorine or dust or contain heavy metals.